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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,999	02/17/2004	Xiaowei Shen	YOR920030612US (8728-669)	1319
46069 7590 04/05/2007 F. CHAU & ASSOCIATES, LLC 130 WOODBURY ROAD WOODBURY, NY 11797			EXAMINER MCLEAN MAYO, KIMBERLY N	
			ART UNIT 2187	PAPER NUMBER

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/779,999

Applicant(s)

SHEN ET AL.

Examiner

Kimberly N. McLean-Mayo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 20-22 is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-9, 12-14, 16, 19, 23 and 24 is/are rejected.
- 7) ☒ Claim(s) 4, 5, 10, 11, 15, 17 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The enclosed detailed action is in response to the Amendment submitted on January 18, 2007.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 6-9, 12-16, 19 and 23-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Peir et al. (PGPUB: US 2002/0144063).

Regarding claim 1, Peir discloses a plurality of caches, comprising a first cache (Figure 1, one of References 122); and a prediction mechanism predicting (Figure 2, Reference 22) that data requested by the first cache of a cache miss can be found in at least one of the one or more other caches, if an address of the cache miss matches an address tag of a cache line in the first cache and the cache line in the first cache is in an invalid state (sections 0011- 0020).

Regarding claims 2-3, 8-9, Peir discloses the prediction mechanism comprising a prediction table (Figure 2, References 23 and 24) that records one or more addresses of one or more recently replaced invalid or replaced cache lines (this occurs when a new owner of the data block is identified)(section 0019)

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Regarding claims 6, 12 and 23-24, Peir discloses a plurality of caches, comprising a first cache and one or more other caches (Figure 1, References 122); a memory and a memory controller operatively coupled to the memory ((Figure 2, Reference 16); and a prediction mechanism operatively coupled to the first cache, the prediction mechanism predicting whether data requested by the first cache of a cache miss can be supplied by at least one of the one or more caches producing a prediction result and sending the prediction result to the memory controller (logic within unit Reference 16, which reads/obtains information from Reference 22)(sections 0011- 0020); wherein the memory controller uses the prediction result to determine if the memory is to be accessed immediately or if the memory is not to be accessed until a corresponding cache snoop operation shows that the data requested by the first cache cannot be supplied by at least one of the one or more caches (sections 0021-0023). Additionally regarding claim 24, refer to claim 19 of Peir.

Regarding claim 7, Peir discloses the prediction mechanism predicting (Figure 2, Reference 22) that data requested by the first cache of a cache miss can be found in at least one of the one or more other caches, if an address of the cache miss matches an address tag of a cache line in the first cache and the cache line in the first cache is in an invalid state (sections 0011- 0020).

Regarding claims 13-14 and 19, Peir discloses a plurality of caches, comprising a first cache and one or more other caches (Figure 1, References 122); a memory and a memory controller operatively coupled to the memory (Figure 2, Reference 16); and a prediction mechanism predicting whether data requested by the first cache of a cache miss can be found in at least one

of the one or more other caches, and producing a prediction result (sections 0011-0020); wherein the prediction mechanism comprises a prediction table (Figure 2, Reference 23 and 24) that is updated accordingly when the prediction mechanism observes a cache operation that can affect whether data requested by the first cache of a future cache miss can be found in at least one of the one or more caches (sections 0016-0023).

Regarding claim 16, Peir discloses the memory controller using the prediction result to determine if the memory is to be accessed immediately or if the memory is not to be accessed until a corresponding cache snoop operation shows that the data requested by the first cache cannot be supplied by at least one of the one or more caches (sections 0021-0023).

Allowable Subject Matter

4. Claims 20-22 are allowed.
5. Claims 4-5, 10-11, 15 and 17-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments filed have been fully considered but they are not persuasive. Regarding Applicant's arguments concerning Peir, the Examiner disagrees. Peir teaches that the prediction mechanism provides ownership current owner information [section 0014, lines 1-3]

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which is used by a processor to determine whether data requested by it and resulting in a miss can be found in another cache [section 0020, entire]. The current owner information tables are only used incident to a cache miss and thus it is evident that the prediction mechanism is used to determine whether data not found in the local cache [cache miss] can be found in another cache. As noted in the disclosure of Peir, the predictions are used to obtain a current copy of data without inquiring of the home directory and thereby accelerating operations performed by the processor. Peir's prediction mechanism provides information to the processor which allows the processor to obtain data not present or present but invalid in its own cache.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly N. McLean-Mayo whose telephone number is 571-272-4194. The examiner can normally be reached on Mon, Wed, Thurs (10-4), Tues (9:45 - 6:15).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on 571-272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

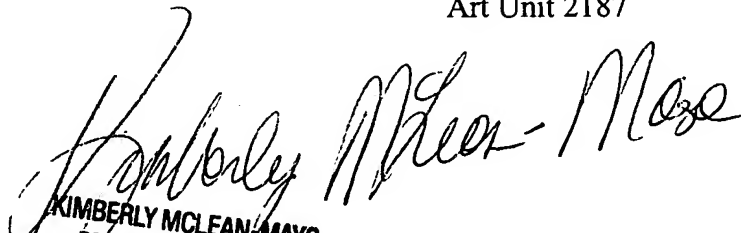
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kimberly N. McLean-Mayo
Primary Examiner
Art Unit 2187

KNM

April 1, 2007


KIMBERLY MCLEAN-MAYO
PRIMARY EXAMINER